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ABSTRACT

A longitudinal study followed cohorts of students progressing through schools in the Cleveland Public School district and compared the reading comprehension scores of black and white students. Subjects, 12 cohorts ranging in size from 1400 to 2900 students, had reading comprehension test scores available for the first and last years of the study. Comparison of the test results indicated that: (1) the difference between the percentage of white students and the percentage of black students scoring above the thirty-third percentile widened over the course of the study for all cohorts spanning more than two years; (2) parity of test scores did not occur in any of the cohorts in the final two years of the study; (3) the parity gap is lower in the elementary grades for all cohorts and parity occurs more frequently in the lower grades; and (4) black students read less well than white students at most grade levels in each of the 12 cohorts. (Fourteen figures and two tables of data are included; an appendix of data is attached.) (RS)

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Cleveland City School District

LONGITUDINAL READING PARITY STUDY

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MAY, 1988

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EXECUTIVE SUMMARY

The Longitudinal Parity Study follows cohorts of students progressing through the school district. Each year reading comprehension results for Black students and White students are compared. This study was undertaken to supplement the cross sectional parity study completed in November, 1987 and is designed to address the federal court recommendations.

Students were included in this study if they had test results on file for the first and last available study years and if they progressed through the grade levels reflecting an annual promotion pattern (as a member of a cohort group.)

These selection criteria rendered twelve cohorts ranging in size from 1400 to 2900 students. The results of a year-by-year parity assessment completed for all of the cohorts are displayed in Figure 2 (Page 11). Observations concerning the analysis are noted below.

- The parity gap, defined as the difference between the percentage of White students and the percentage of Black students scoring above the 33rd percentile, widened over the course of the study years for all cohorts spanning more than two years. (Cohorts A through J.)
- Parity, indicating a "small enough" parity gap, did not occur in any of the cohorts in the final two study years.
- Parity occurs more frequently in the lower grades, confirming findings of the earlier multi-year cross sectional study.
- Four of six cohorts still enrolled in the District in 1986-87 evidenced parity in at least one year.
- With one exception, students in grades 8 through 12 have not attained parity.
- The parity gap is lower in the elementary grades for all cohorts.
- The longitudinal gap analysis shows that Black students read less well than White students at most grade levels, in each of the twelve cohorts.
- In total, six additional cohort-year groups attained parity in this study in comparison to the earlier cross sectional study.
- Parity gaps were on average smaller among cohort groups in this study compared with the cross sectional study.

CHAPTER I

INTRODUCTION

This study represents the first longitudinal assessment of test results from the Cleveland Testing Program. The design incorporates a cohort group analysis from 1978-79 to 1986-87 of reading parity in the District and is in response to a recommendation made by Dr. Harrison J. Means which stated "... The baseline for grades 3, 4, 5 and 6 should be test data and analyses from the 1978-79 school year and these pupils should be followed longitudinally until 1987-88 or until parity is achieved. The baseline for other grades should be 1980-81 since that is the first year all students were tested by CTBS." (OSMCR Comments, Attachment F, Memorandum from Harrison J. Means, Ph.D., March 11, 1983, Recommendation #2, p. 4).

BACKGROUND

In 1976, the State of Ohio and the Cleveland City School District were found guilty of operating a segregated and dual school system. Reading was one of the fourteen areas cited in need of improvement. Prior to school desegregation, there was a direct correlation between the percentage of students scoring below average performance levels on reading tests and the percentage of Black students enrolled at a single school. In 1978, the District was ordered to institute a reading program that did not resegregate students and to assess the disparities in reading test scores between Minority and White students. The school district collected test results by race for the first time in 1979. In 1982, the District instituted an Affirmative Reading Skills Program. This Program consists of three strands: (1) The Developmental Strand contains the current comprehensive English and Reading Language Arts curriculum implemented in grades 1 through 12; (2) The Support Strand provides additional enrichment, corrective and remedial support to

basic English and Reading Language Arts classroom curricula; and (3) The Compensatory/ Affirmative Strand provides intervention and/or remediation to selected students who have been identified as either "adversely affected" or who exhibit remedial reading needs. (Board Policy 6131.112, adopted 07/25/85.) Adversely affected students are those who:

- attended a one-race school in 1978-79
- scored at or below the 33rd percentile on the following tests:
  - 1980-81 CTBS Reading Comprehension
  - 1981-82 CTBS Reading Comprehension
  - 1981-82 CTBS Language Mechanics
- were neither LAU nor Special Education in June, 1983.

The major goal of the Affirmative Reading Skills Program is to establish parity. Parity is achieved when statistically equivalent proportions of Black students and White students meet the performance criterion on a standardized norm-referenced reading test. To meet the performance criterion a score at or above the 34th percentile rank (PR) is needed.

System-wide desegregation began in the 1979-80 school year and was completed by 1980-81. In 1978-79 and 1979-80 test data were available for only four grades (3, 4, 5 and 6). All twelve grades were tested during the 1980-81 school year. Therefore, there are two data baseline years: (1) Comparison data for grades 3, 4, 5 and 6 in 1978-79 and (2) Comparison data for grades 1, 2 and 7 through 12 in 1980-81. Scores for those students tested in grades 3, 4, 5 and 6 during the 1978-79 school year represent reading achievement prior to school desegregation. In general, students tested in grades 1 through 7 in the Spring of 1987 have completed all of their schooling in a desegregated setting. In addition, some grade 8 students (those in the Kennedy/Marshall Cluster, who were desegregated in 1979-80) have attended only desegregated schools as of the Spring, 1987 testing.

The organizational grade structure within the District was modified in 1986-87 to place all ninth grade students in senior high school buildings. Seventh and eighth grade students remained in intermediate buildings. During this same academic year, the District adopted the California Achievement Test, Form E, for use on a city-wide basis. Reading Comprehension performance among all students was measured using the CAT-E. The District and publisher implemented phase one of an equipercentile equating technique to assure comparability of reading performance over time.

Cross-sectional parity studies have been conducted for test results of 1978-79 through 1986-87 school years. These studies are on file in the Department of Research and Analysis. A brief review of cross-sectional parity results is given below.

Cross-sectional Parity Review

In November, 1987, the District prepared a multi-year cross-sectional assessment of parity in reading. That report examined the District's progress toward parity prior to school desegregation (1978) to the present. The following observations were noted:

- The grade 1 gap between the two groups widened by .3 percentage points from 1981 to 1987.
- The grade 2 gap between the two groups narrowed by .5 percentage points from 1981 to 1987.
- The grade 3 gap between the two groups narrowed by 4.4 percentage points from 1979 to 1987.
- The grade 4 gap between the two groups narrowed by 7.2 percentage points from 1979 to 1987.
- The grade 5 gap between the two groups narrowed by 3.1 percentage points from 1979 to 1987.
- The grade 6 gap between the two groups narrowed by 7.4 percentage points from 1979 to 1987.
- The grade 7 gap between the two groups narrowed by 12.3 percentage points from 1981 to 1987.

- The grade 8 gap between the two groups narrowed by 11.5 percentage points from 1981 to 1987.
- The grade 9 gap between the two groups narrowed by 7.3 percentage points from 1981 to 1987.
- The grade 10 gap between the two groups widened by .3 percentage points from 1981 to 1987.
- The grade 11 gap between the two groups narrowed by 1.3 percentage points from 1981 to 1987.
- The grade 12 gap between the two groups narrowed by 10.5 percentage points from 1981 to 1987.

The gap between the percent of Black students and White students with regard to their reading proficiencies has narrowed in every grade except at grades 1 and 10. Although parity may not have been attained at each of these grade levels during the school year comparisons indicated, it is important to note that progress toward narrowing the gap has been made.

CHAPTER II

METHODOLOGY

LONGITUDINAL DESIGN

The study at hand represents Phase Two of the 1986-87 Parity Study. The initial phase reported the annual multi-year cross sectional study and was reported in November, 1987. This phase represents the longitudinal study which incorporates the recommendations that baseline years of 1979 and 1981 be used for the initial years of the study and that these pupils be followed longitudinally until 1988. This report will satisfy these recommendations through and including the 1987 test results; Spring, 1988 results will be reported at a later date.

The design of this study was selected in order to satisfy the requirements set forth above. The students selected for inclusion in the analysis satisfied the following requirements to comprise the twelve cohorts in the study.

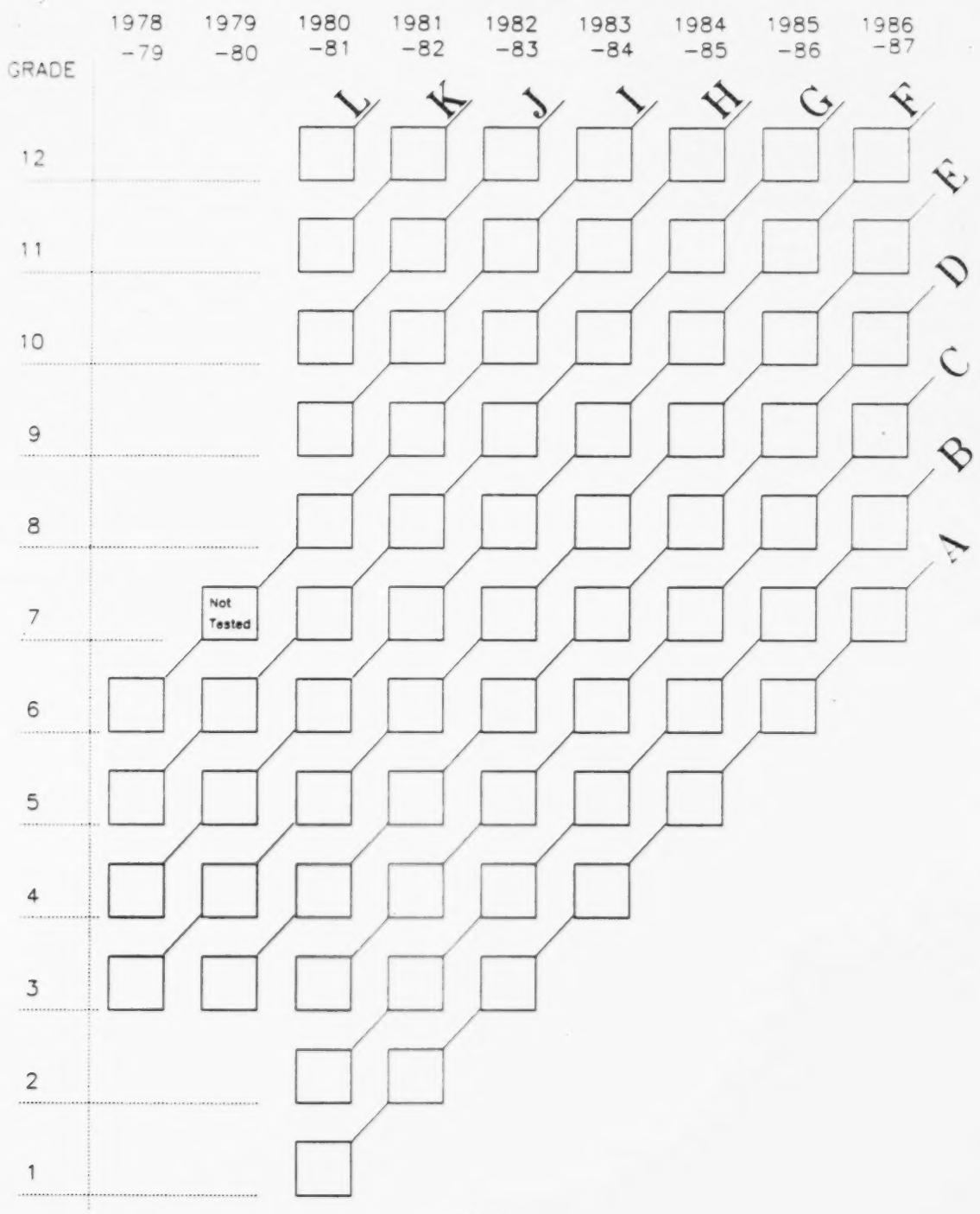
1. Students were included if they had a reading comprehension test score on file during their respective initial baseline year and during their last year included in this study; and

2. Students were qualified if they had attained the final appropriate grade level assuming an annual promotion from grade to grade within the District.

The cohorts are labeled A through L respectively according to their initial test year and grade. Figure 1 below will illustrate each cohort's beginning and ending points.

FIGURE 1

LONGITUDINAL PATTERN OF RACIAL PARITY
IN READING COMPREHENSION



The sample was selected from all students who had tests on file any time during the years 1979 and 1987. It should be noted that these tests represented the reading comprehension subtest of the Comprehensive Test of Basic Skills (from 1979 to 1986) and of the California Achievement Test (in 1987). The two aforementioned criteria were then applied to the collective file of students with test results to render each cohort membership. Implied in the two selection rules are that each cohort does consist of students who have valid test results in their first and last possible test points in the study and that they have progressed in a normal fashion through the grades during the period of the study (no non-promotes are included).

The application of these rules rendered the following cohort samples.

TABLE 1
COHORT SAMPLES

Cohort Label	Total n	Black n	White n	Percent Black	Percent White	Durtn Years	Grade Beg	Grade End
A	2342	1808	534	77	23	7	1	7
B	2343	1885	458	80	20	7	2	8
C	2329	1961	368	84	16	7	3	11
D	2259	1907	352	84	16	8	3	12
E	1952	1637	315	84	16	9	3	12
F	1525	1295	230	85	15	9	4	12
G	1397	1165	232	83	17	8	5	12
H	1576	1274	302	81	19	6	6	12
I	1462	1161	301	79	21	4	9	12
J	1534	1227	307	80	20	3	10	12
K	1458	1101	357	76	24	2	11	12
L	2905	2004	901	69	31	1	12	12

Observations concerning the sample groupings include:

The complete desegregation of students in the District commenced in fall, 1980; two points (years) of data from pre-desegregation years are included in the study.

Ten of the twelve cohorts (C through L) represent cohorts which could include adversely affected students per defined status.

The Affirmative Reading Program was initiated in 1982; four points of data preceding this program are included in this study.

Seven of the twelve cohorts graduated during the period included in this study; the longest duration cohorts (E & F) include nine years of data.

The cohorts represent from 22 percent to 94 percent of their respective initial year classes reported in the multi-year cross sectional study; in eight of twelve cohorts the sample represents between 30 and 50 percent of the initial year parity report.

The racial compositions of all the cohorts (except L) represent greater proportions of black students than those reported in the cohorts' respective initial year in the cross sectional study.

DATA ANALYSIS

Once the sample was identified and selected, the analysis of reading comprehension test results was completed in order to assess the status of reading parity for each cohort for each year in the study. It should be noted that selection criteria renders cohort memberships which could yield missing data during any of the intervening years of the cohort. All members of each cohort have valid reading scores during their first and last years but may have missing scores during the intervening years.

The Normal Curve Equivalent (NCE) score was used to assess the achievement grouping for each cohort member for each year's assessment. A cut score of 42 NCE units was required for a student to be placed in the greater than thirty third percentile group for all of th CTBS results through 1986. The 1987 cut scores obtained for the administration of the CAT reading comprehension subtest were first transformed using the equivalent CTBS scores obtained from the 1987 Equating Study. (For a discussion of this study, see The Reading Parity Study, Phase I, November, 1987.) The upper achievement groupings of both Black and White students were then used for the application of the test of independent proportions (see Hinkle, Wiersma, and Jurs, 1986).[1]

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[1]Hinkle, D.E, Wiersma, W. and Jurs, S.G. Applied Statistics for the Behavioral Sciences, 1979 (Boston: Haughton Mifflin Co.) p. 186.

The standard error of the difference of independent proportions was calculated and the test statistic (z) was assessed for significance of differences existing between the proportions at the .01 level of confidence (see Appendix A). Those years in which Black and White students in the same cohort demonstrated non-significant differences between the proportions, parity was attained.

The statistical analysis and results will be illustrated and discussed in Chapters 3 and 4.

LIMITATIONS

The technique of cohort selection used here excludes students who are non-promoted. Since parity is concerned with students falling in the lower third and since such students are more likely to be held back, an importnat population is omitted from the study.

By using starting and ending years in the cohort definitions, the comparability among cohorts is weakened. For example, Cohort K students were promoted at least one year, while Cohort F students were promoted in eight successive years.

The parity tolerance (see notes to Appendix A) shows a wide variation over the included years, from a low of 3.4% up to 10.5%. Since the standard deviation statistic used depends upon the number of students in each racial group, the larger size cohorts tended to have lower parity tolerance. The standard deviation is also a function of the percentage of students above the 33rd percentile, resulting in differing tolerances within cohorts.

The statistic used in parity calculations asssumes a sample size n of a population N, where the ratio n/N is small. Using that test of significance in the present study, where every effort is used to obtain a complete census, is questionable.

CHAPTER III

RESULTS

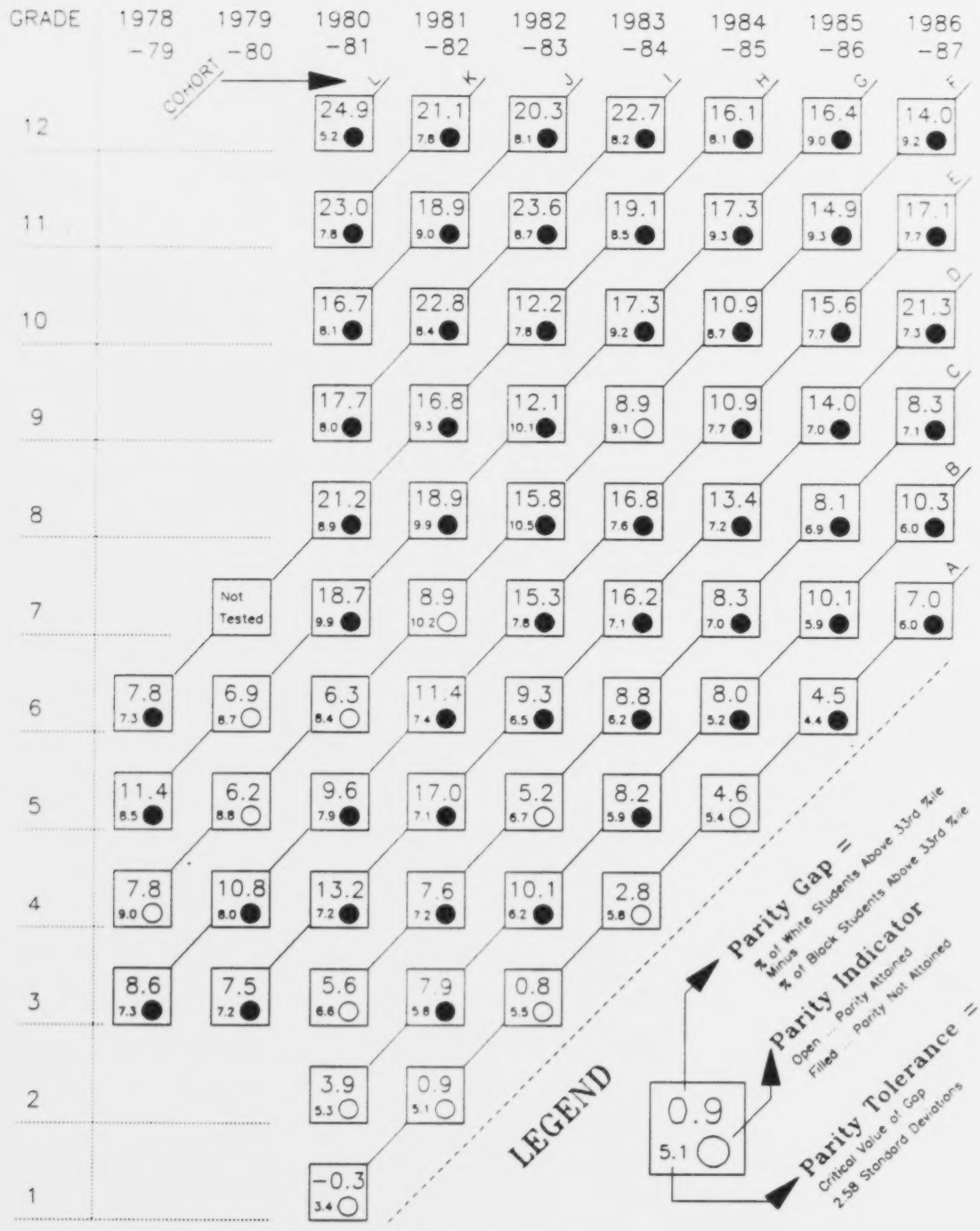
INTRODUCTION

The results of the data analysis are illustrated in Figure 2. Each block in the illustration contains information concerning the cohort's reading parity assessment for the year in the column heading. Examining the cohorts from lower left to the upper right corners of the chart will render a progressive view of each cohort's parity status throughout the years in the study. The reader is reminded that each cohort is an exclusive and unique grouping of students based upon their grade progression and longevity in the District.

The disucssion which follows Figure 2 addresses the progress of each cohort with respect to reading parity measured over the years. An analysis of the proportional gap for each cohort-year is included.

FIGURE 2

RACIAL PARITY IN READING COMPREHENSION
FOR COHORTS* OF STUDENTS



*Note: Students in the cohorts studied here had both initial year and final year tests reflecting normal grade promotion

PARITY GAP ANALYSIS

Cohort A: Grade 1 1980-81 through Grade 7 1986-87

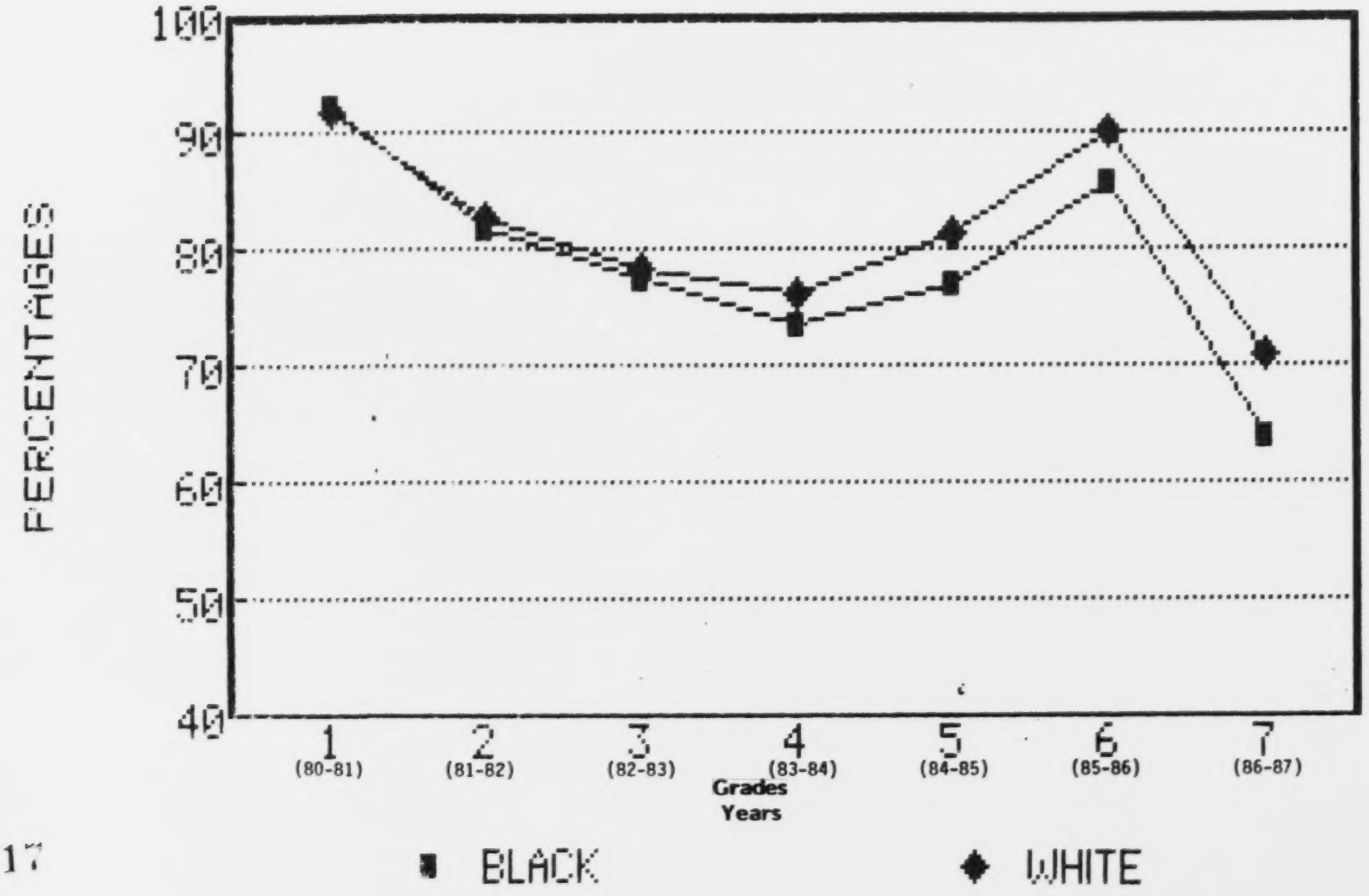
Parity was attained at grades 1, 2, 3, 4 and 5 for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR at grades 6 and 7.

The gap between the percent of Black and White students who scored at or above the 34th PR (although not statistically significant at grades 1, 2, 3, 4 and 5) widened from -0.3 percentage points in 1980-81 at grade 1 to 7.0 percentage points in 1986-87 at grade 7; an increase of 7.3 percentage points. See Figure 3 and Appendix A. The proportion of Black students who scored at or above the minimum performance level from grade 1 in 1980-81 to grade 7 in 1986-87 decreased by 28.2 percentage points. During this same period, the proportion of White students who scored at or above the minimum performance level decreased by 20.9 percentage points.

As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR decreased annually from grades 1 through 4, increased from grades 4 to 5 and 5 to 6 and decreased from grades 6 to 7. The same pattern was true for White students. It should be noted that there was a precipitous drop in the percent of both Black and White students who met the performance criterion in grades 2 and 7 from the immediately preceding grade. For example, the percent of Black students who met the performance criterion from grade 1 to grade 2 dropped 10.3 percentage points and 21.7 percentage points from grade 6 to grade 7. The percent of White students who met the performance criterion from grade 1 to grade 2 dropped 9.1 percentage points and 19.2 percentage points from grade 6 to grade 7.

FIGURE 3

Percentage of Black and White Students By Grade At or Above 34th Percentile Rank
(Cohort A: Grade 1 1980-81 Through Grade 7 1986-87)



Cohort B: Grade 2 1980-81 through Grade 8 1986-87

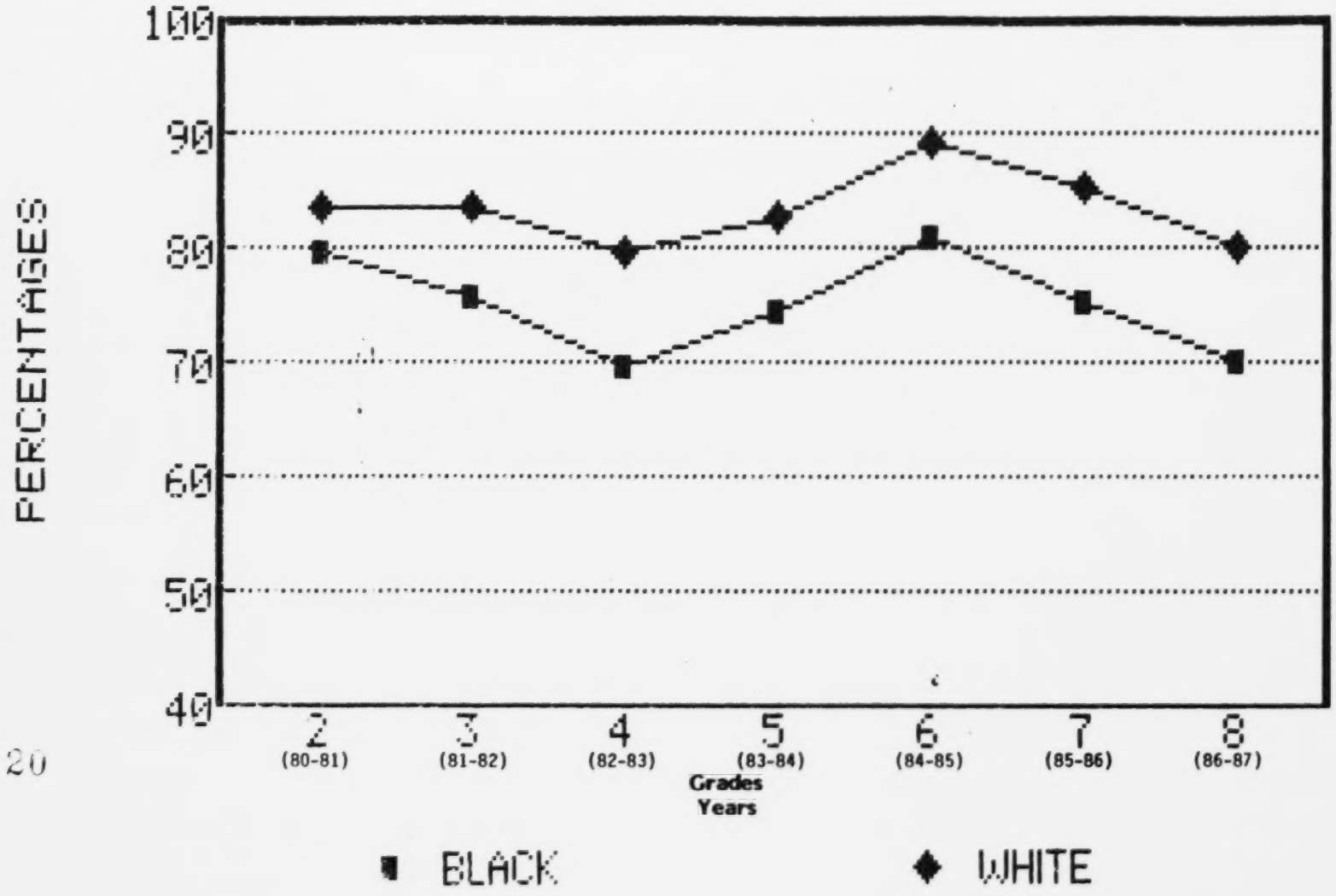
Parity was attained at grade 2 for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR at grades 3 through 8.

The gap between the percent of Black and White students who scored at or above the 34th PR (although not statistically significant at grade 2) widened from 3.9 percentage points in 1980-81 at grade 2 to 10.3 percentage points in 1986-87 at grade 8; an increase of 6.4 percentage points. The proportion of Black students who scored at or above the minimum performance level from grade 2 in 1980-81 to grade 8 in 1986-87 decreased by 9.9 percentage points. During this same period, the proportion of White students who scored at or above the minimum performance level decreased by 3.5 percentage points.

As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR decreased from grades 2 to 3, 3 to 4, 6 to 7 and 7 to 8. The same basic pattern was true for White students except from grades 2 to 3 where the proportion of students who scored at or above the 34th PR remained constant. For both Black and White students there was an increase in the proportion of students who met the minimum performance level from grades 4 to 5 and 5 to 6. See Figure 4 and Appendix A.

FIGURE 4

Percentage of Black and White Students By Grade At or Above 34th Percentile Rank
(Cohort B: Grade 2 1980-81 Through Grade 8 1986-87)



Cohort C: Grade 3 1980-81 through Grade 9 1986-87

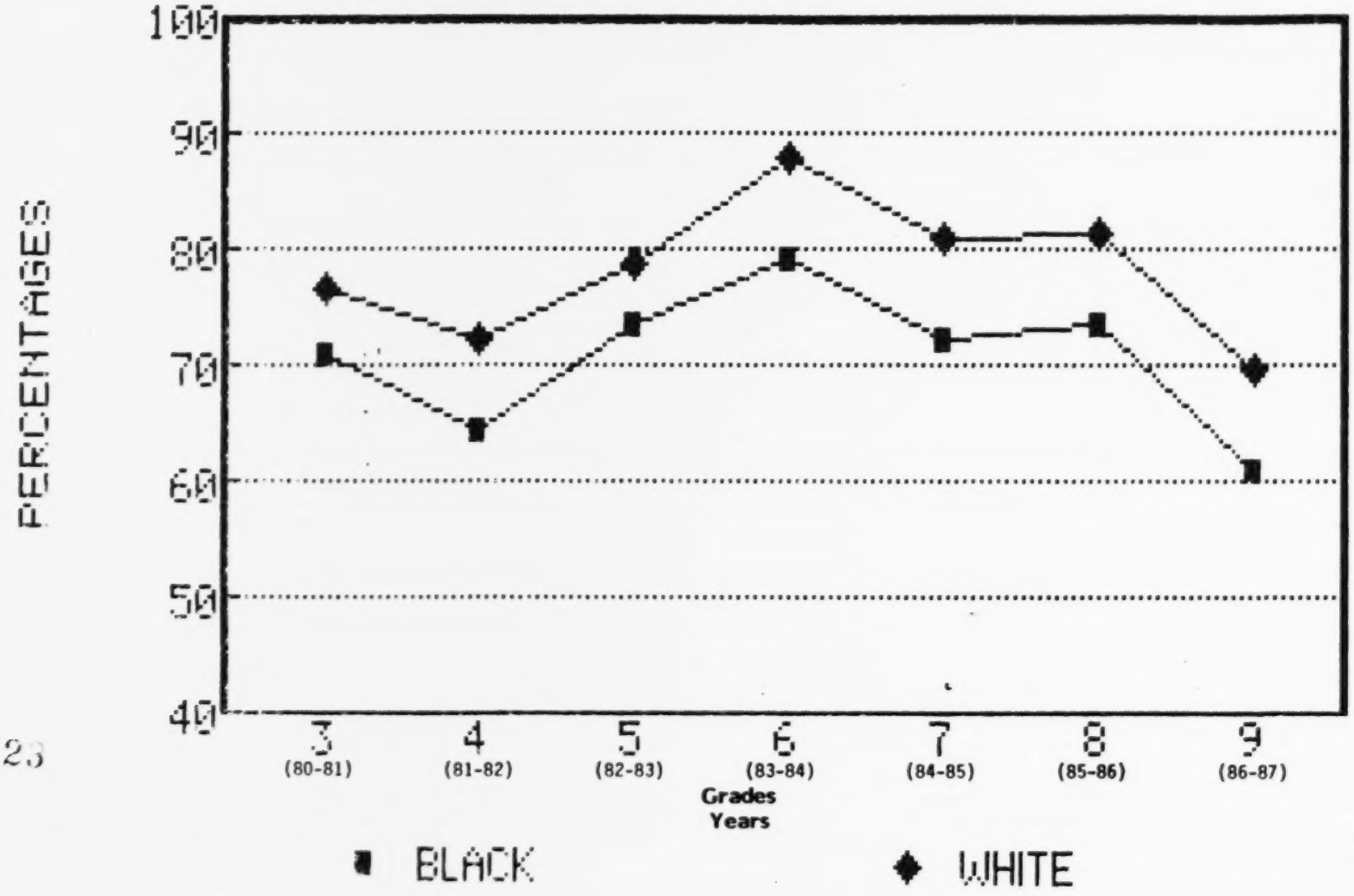
Parity was attained at grades 3 and 5 only for this cohort. A significantly greater proportion of White student than Black students scored at or above the 34th PR at grades 4 and 6 through 9.

The gap between the percent of Black and White students who scored at or above the 34th PR (although not statistically significant at grades 3 and 5) widened from 5.6 percentage points in 1980-81 at grade 3 to 8.3 percentage points in 1986-87 at grade 9; an increase of 2.7 percentage points. The proportion of Black students who scored at or above the minimum performance level from grade 3 in 1980-81 to grade 9 in 1986-87 decreased by 10.1 percentage points. During this same period, the proportion of White students who scored at or above the minimum performance level decreased by 7.3 percentage points.

As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR decreased from grades 3 to 4, 6 to 7 and 8 to 9. The same pattern was true for White students. For both Black and White students there was an increase in the proportion of students who met the minimum performance level from grades 4 to 5, 5 to 6 and 8 to 9. It should be noted that there was a precipitous drop in the percent of both Black and White students who scored at or above the 34th PR from grades 8 to 9. See Figure 5 and Appendix A.

FIGURE 5

Percentage of Black and White Students By Grade At or Above 34th Percentile Rank
(Cohort C: Grade 3 1980-81 Through Grade 9 1986-87)



Cohort D: Grade 3 1979-80 through Grade 10 1986-87

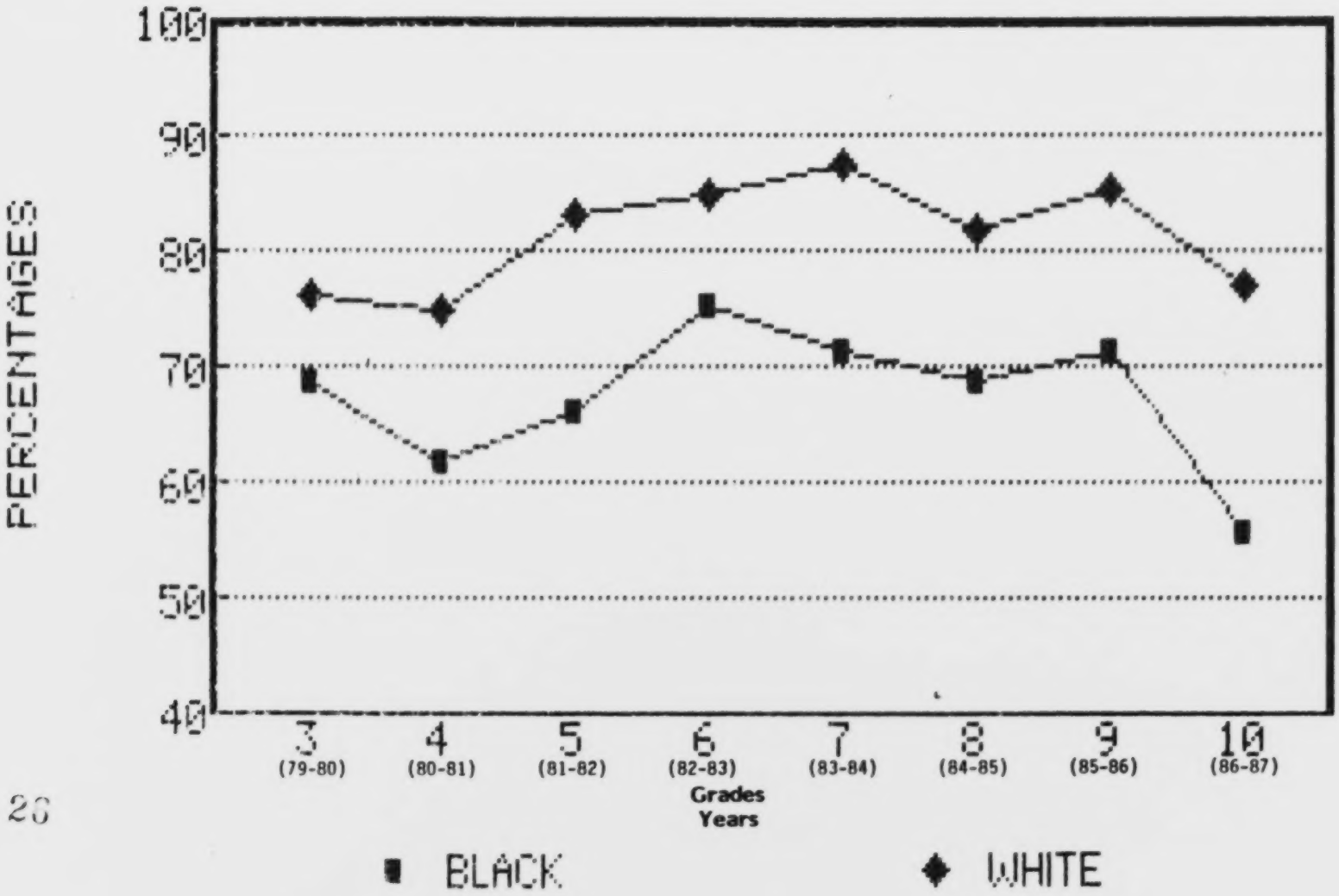
Parity was not attained at any grade level for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR from grades 3 through 10.

The gap between the percent of Black and White students who scored at or above the 34th PR widened from 7.5 percentage points in 1979-80 at grade 3 to 21.3 percentage points in 1986-87 at grade 10; an increase of 13.8 percentage points. The proportion of Black students who scored at or above the minimum performance level from grade 3 in 1979-80 to grade 10 in 1986-87 decreased by 13.1 percentage points. During this same period, the proportion of White students who scored at or above the minimum performance level increased by 0.7 percentage points.

As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR decreased from grades 3 to 4, 6 to 7, 7 to 8 and 9 to 10. The proportion of Black students who scored at or above the 34th PR increased from grades 4 to 5, 5 to 6 and 8 to 9. The same pattern was true for White students except from grades 6 to 7 where the proportion of students who scored at or above the 34th PR also increased. For both Black and White students there was a precipitious drop with respect to the proportion of students who met the minimum performance standard from grades 9 to 10. See Figure 6 and Appendix A.

FIGURE 6

Percentage of Black and White Students By Grade At or Above 34th Percentile Rank
(Cohort D: Grade 3 1979-80 Through Grade 10 1986-87)



Cohort E: Grade 3 1978 through Grade 11 1986-87

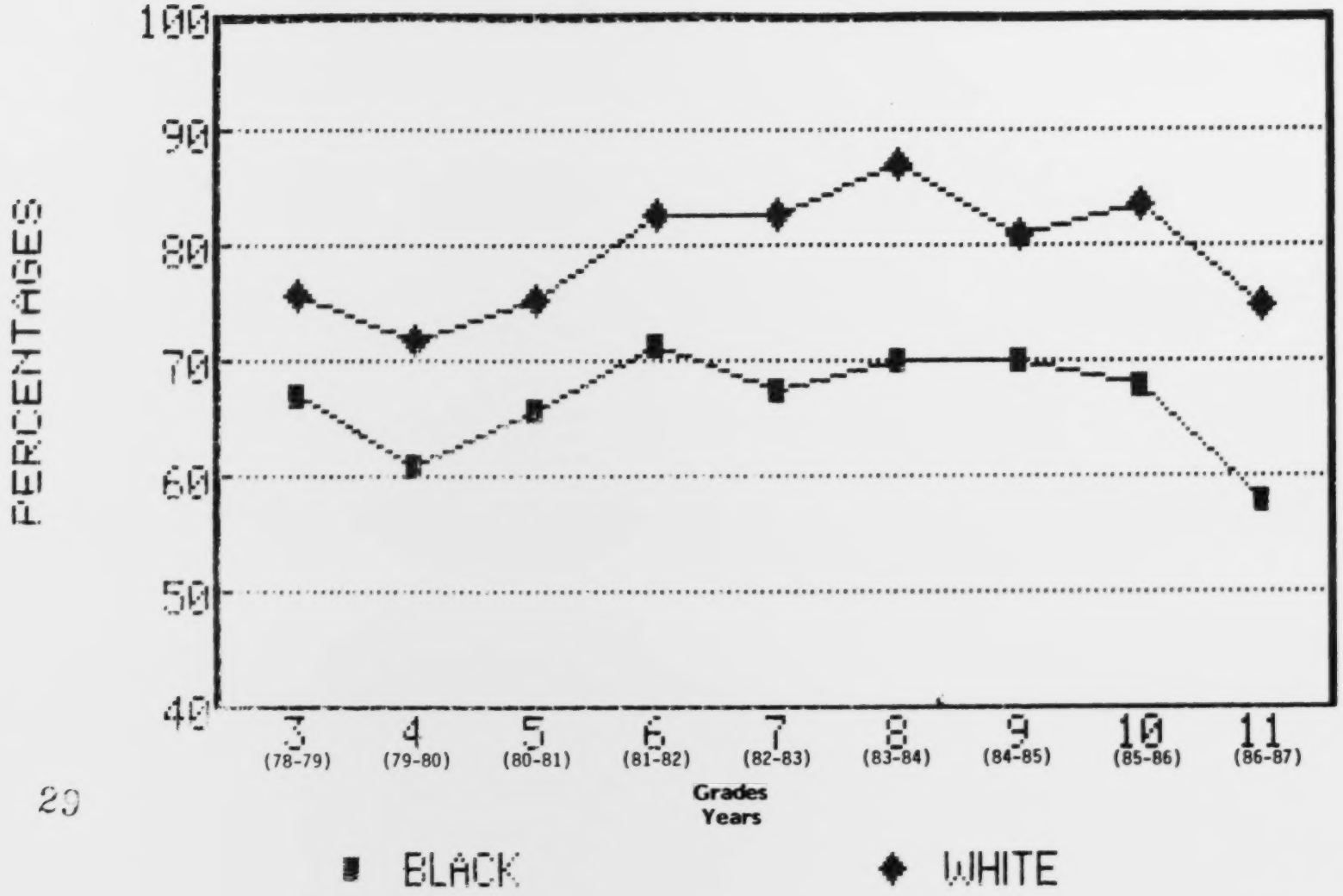
Parity was not attained at any grade level for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR from grades 3 through 11.

The gap between the percent of Black and White students who scored at or above the 34th PR widened from 8.6 percentage points in 1978-79 at grade 3 to 17.1 percentage points in 1986-87 at grade 11; an increase of 8.5 percentage points. The proportion of Black students who scored at or above the minimum performance level from grade 3 in 1978-79 to grade 11 in 1986-87 decreased by 9.1 percentage points. During this same period, the proportion of White students who scored at or above the minimum performance level decreased by 0.7 percentage points.

As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR decreased from grades 3 to 4, 6 to 7, 8 to 9, 9 to 10 and 10 to 11. The proportion of White students who scored at or above the 34th PR decreased from grades 3 to 4, 8 to 9 and 10 to 11. For both Black and White students there was an increase in the proportion of students who met the minimum performance level from grades 4 to 5, 5 to 6 and 7 to 8. White students also experienced an increase from grades 9 to 10 and their scores remained constant (82.8% scored at or above the 34th PR) from grades 6 to 7. See Figure 7 and Appendix A.

FIGURE 7

Percentage of Black and White Students By Grade At or Above 34th Percentile Rank
(Cohort E: Grade 3 1978-79 Through Grade 11 1986-87)



Cohort F: Grade 4 1978-79 through Grade 12 1986-87

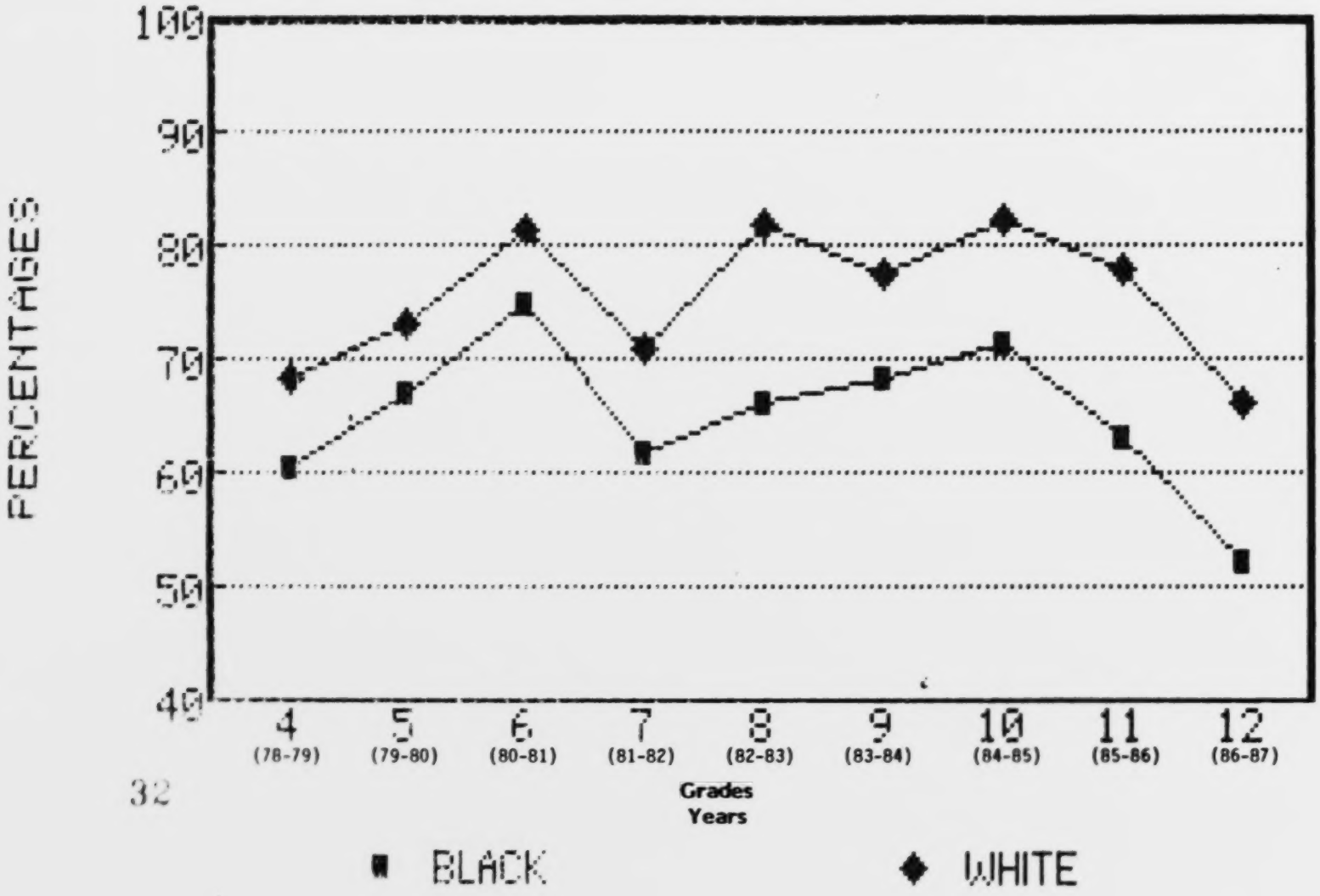
Parity was attained at grades 4, 5, 6, 7 and 9 for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR at grades 8, 10, 11 and 12.

The gap between the percent of Black and White students (although not statistically significant at grades 4, 5, 6, 7 and 9) widened from 7.8 percentage points in 1978-79 at grade 4 to 14.0 percentage points in 1986-87 at grade 12; an increase of 6.2 percentage points. The proportion of Black students who scored at or above the minimum performance level from grade 4 in 1978-79 to grade 12 in 1986-87 decreased by 8.0 percentage points. During the same period, the proportion of White students who scored at or above the minimum performance level decreased by 1.8 percentage points.

As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR decreased from grades 6 to 7, 10 to 11 and 11 to 12. The proportion of White students who scored at or above the 34th PR decreased from grades 6 to 7, 8 to 9, 10 to 11 and 11 to 12. For both Black and White students there was an increase in the proportion of students who met the minimum performance level from grades 4 to 5, 5 to 6, 7 to 8 and 9 to 10. Black students experienced an additional increase from grades 8 to 9. See Figure 8 and Appendix A.

FIGURE 8

Percentage of Black and White Students By Grade At or Above 34th Percentile Rank
(Cohort F: Grade 4 1978-79 Through Grade 12 1986-87)



Cohort G: Grade 5 1978-79 through Grade 12 1985-86

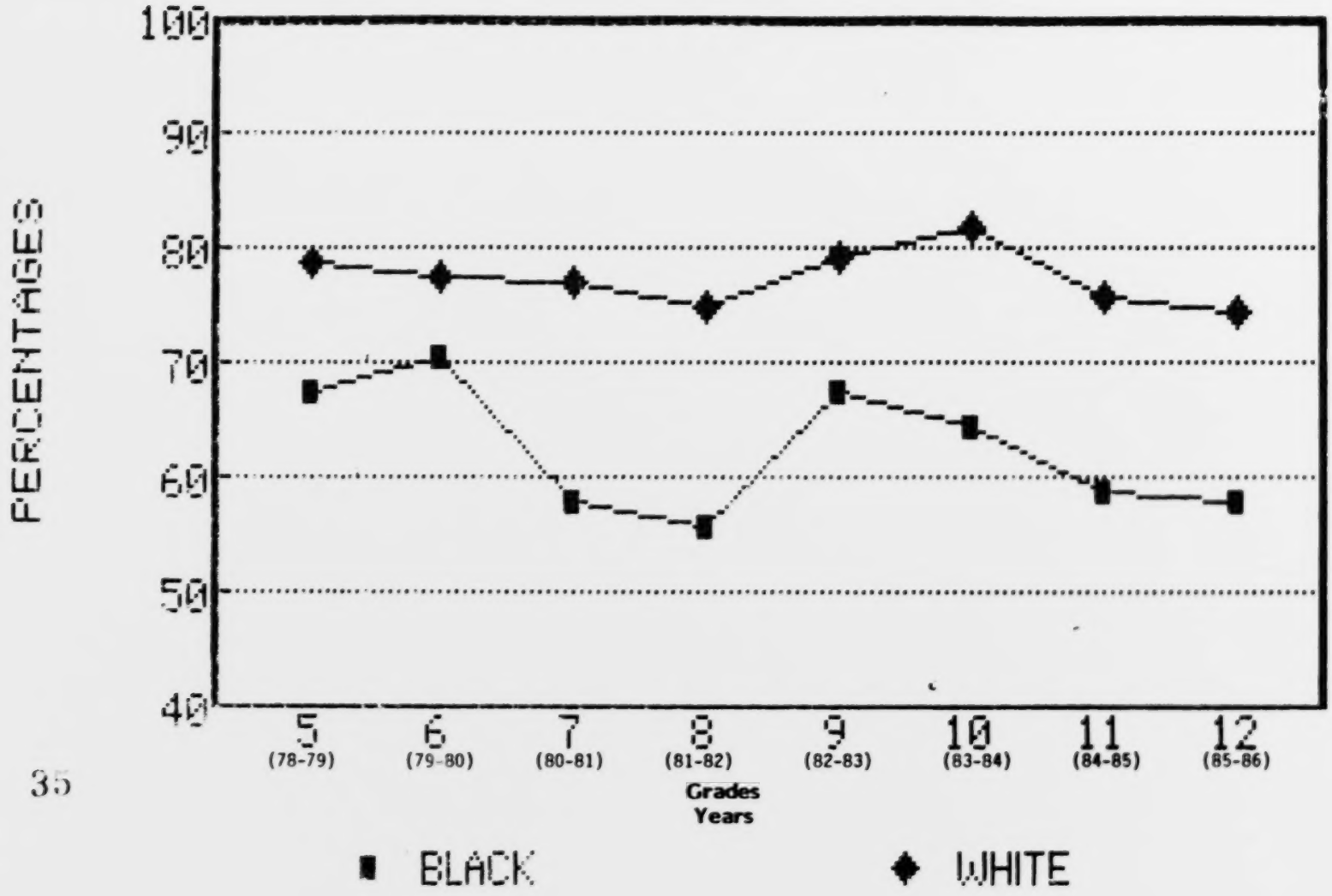
Parity was attained at grade 6 for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR at grades 5 and 7 through 12.

The gap between the percent of Black and White students who scored at or above the 34th PR (although not statistically significant at grade 6) widened from 11.4 percentage points in 1978-79 at grade 5 to 16.4 percentage points in 1985-86 at grade 12; an increase of 5.0 percentage points. The proportion of Black students who scored at or above the minimum performance level from grade 5 in 1978-79 to grade 12 in 1985-86 decreased by 9.3 percentage points. During this same period, the proportion of White students who scored at or above the minimum performance level decreased by 4.3 percentage points.

As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR decreased from grades 6 to 7, 7 to 8, 9 to 10, 10 to 11 and 11 to 12. The proportion of White students who scored at or above the 34th PR decreased from grades 5 to 6, 6 to 7, 7 to 8, 10 to 11 and 11 to 12. For both Black and White students there was an increase in the proportion of students who met the minimum performance level from grades 8 to 9. Black students also experienced an increase from grades 5 to 6, whereas the additional increase for White students occurred from grades 9 to 10. See Figure 9 and Appendix A.

FIGURE 9

Percentage of Black and White Students At or Above 34th Percentile Rank
(Cohort G: Grade 5 1978-79 Through Grade 12 1985-86)



Cohort H: Grade 6 1978-79 through Grade 12 1984-85

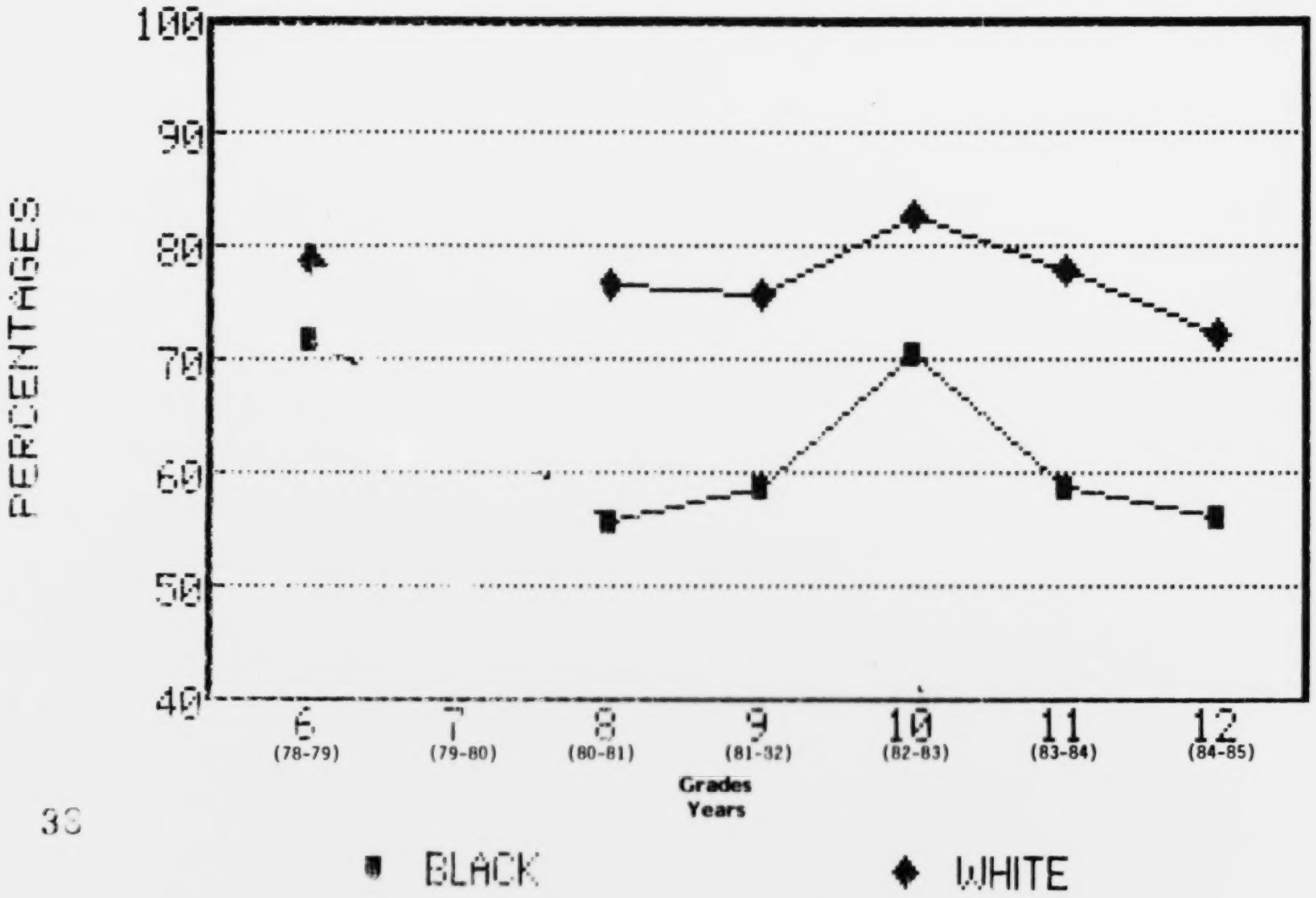
Parity was not attained at any grade level for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR.

The gap between the percent of Black and White students who scored at or above the 34th PR widened from 7.8 percentage points in 1978-79 at grade 6 to 16.1 percentage points in 1984-85 at grade 12; an increase of 8.3 percentage points. The proportion of Black students who scored at or above the minimum performance level from grade 6 in 1978-79 to grade 12 in 1984-85 decreased by 15.6 percentage points. During this same period, the proportion of White students who scored at or above the minimum performance level decreased by 7.3 percentage points.

It should be noted that no test was administered at grade 7 during the 1979-80 school year. As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR decreased from grades 6 to 8, 10 to 11 and 11 to 12. The same basic pattern was true for White students although they experienced an additional decrease from grades 8 to 9. For both Black and White students there was an increase in the proportion of students who met the minimum performance level from grades 9 to 10. Black students also experienced an increase from grades 8 to 9. See Figure 10 and Appendix A.

FIGURE 10

Percentage of Black and White Students By Grade At or Above 34th Percentile Rank
(Cohort H: Grade 6 1978-79 Through Grade 12 1984-85)



Cohort I: Grade 9 1980-81 through Grade 12 1983-84

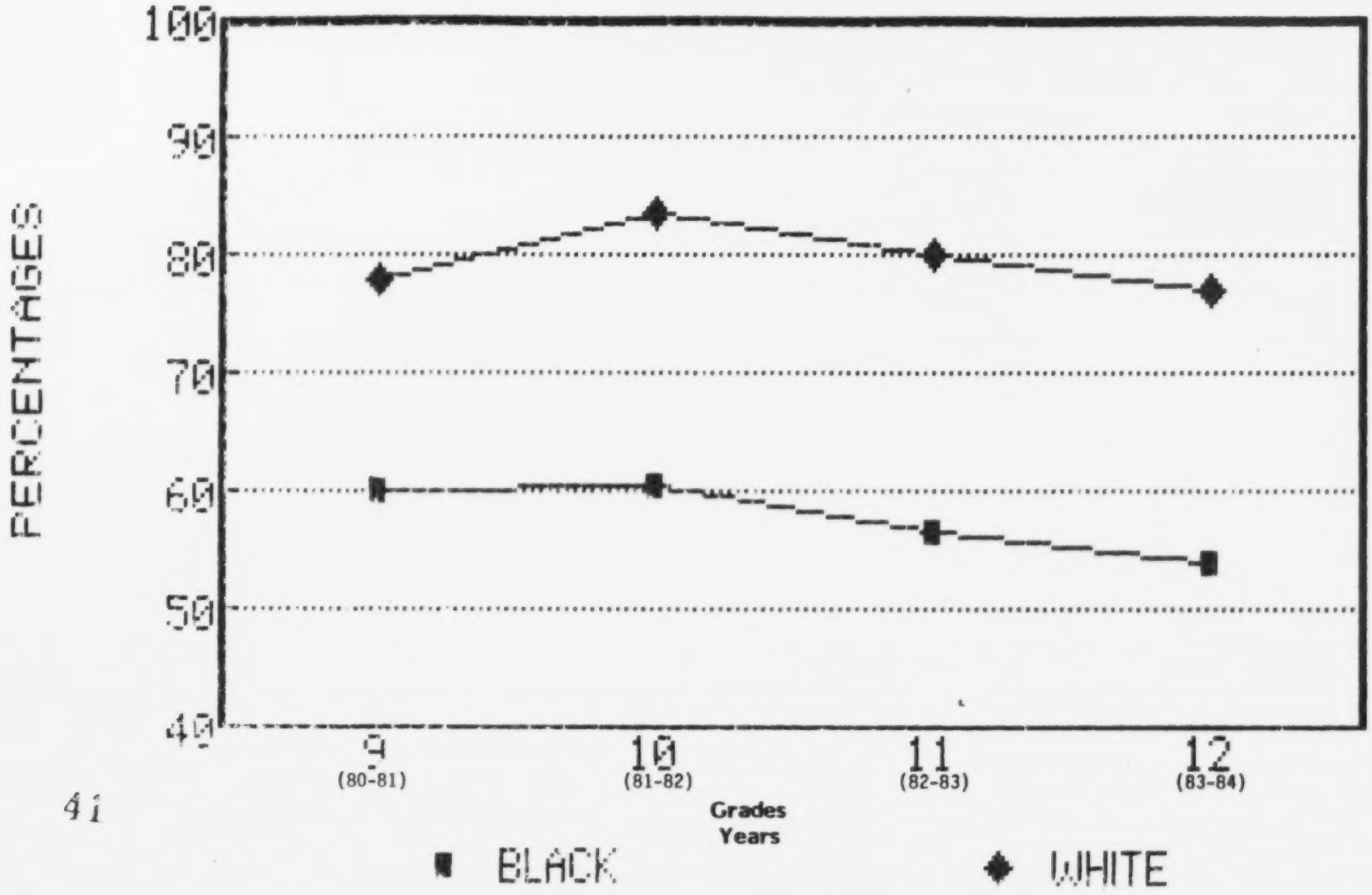
Parity was not attained at any grade level for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR.

The gap between the percent of Black and White students who scored at or above the 34th PR widened from 17.7 percentage points in 1980-81 at grade 9 to 22.7 percentage points in 1983-84 at grade 12; an increase of 5.0 percentage points. The proportion of Black students who scored at or above the minimum performance level from grade 9 in 1980-81 to grade 12 in 1983-84 decreased by 6.1 percentage points. During this same period, the proportion of White students who scored at or above the minimum performance level decreased by 1.0 percentage points.

As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR decreased from grades 10 to 11 and 11 to 12 and increased from grades 9 to 10. The same pattern was true for White students. See Figure 11 and Appendix A.

FIGURE 11

Percentage of Black and White Students By Grade At or Above 34th Percentile Rank
(Cohort I: Grade 9 1980-81 Through Grade 12 1983-84)



Cohort J: Grade 10 1980-81 through Grade 12 1982-83

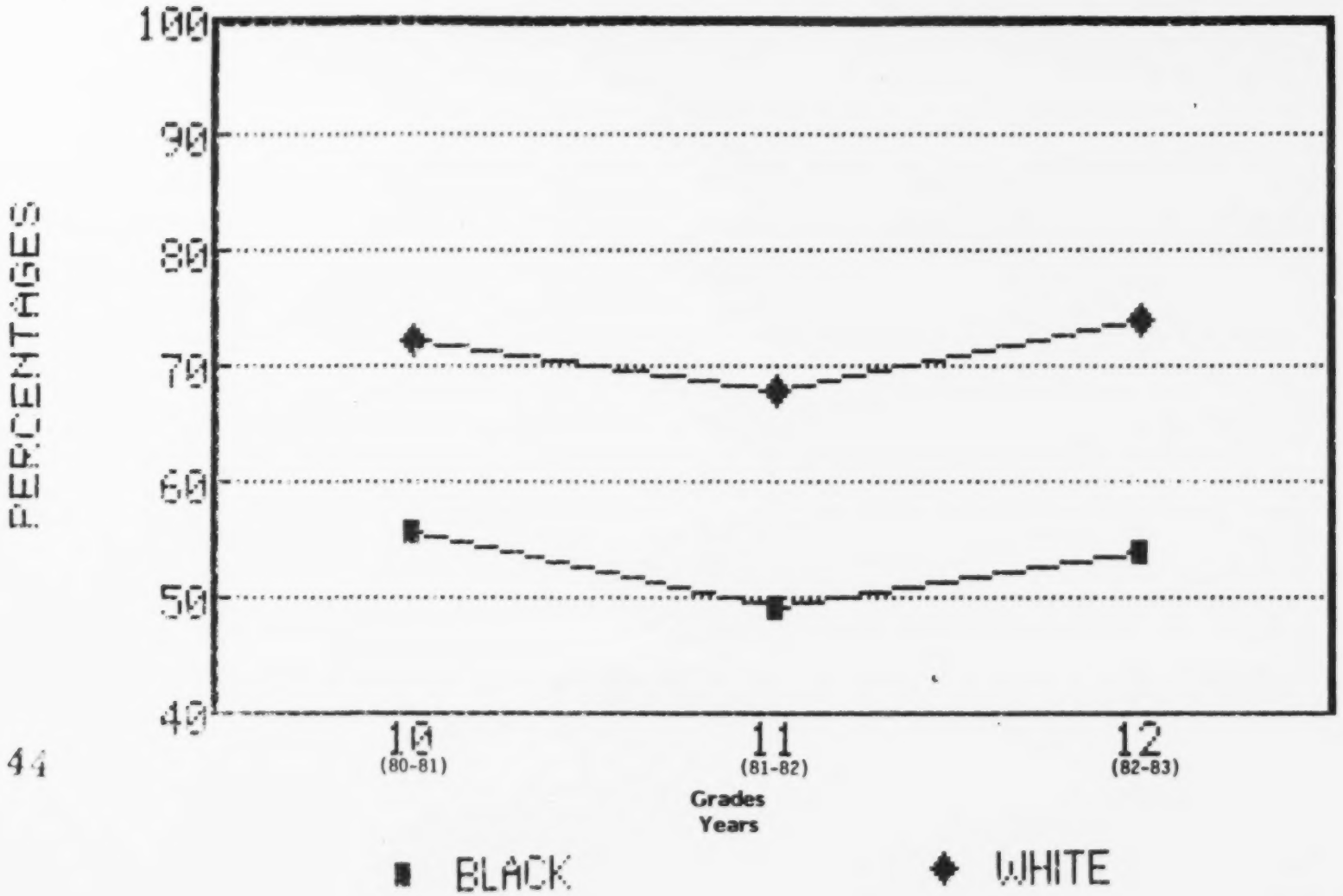
Parity was not attained at any grade level for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR.

The gap between the percent of Black and White students who scored at or above the 34th PR widened from 16.7 percentage points in 1980-81 at grade 10 to 20.3 percentage points in 1982-83 at grade 12; an increase of 3.6 percentage points. The proportion of Black students who scored at or above the minimum performance level from grade 10 in 1980-81 to grade 12 in 1982-83 decreased by 1.9 percentage points. During this same period, the proportion of White students who scored at or above the minimum performance level increased by 1.7 percentage points.

As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR decreased from grades 10 to 11 and increased from grades 11 to 12. The same pattern was true for White students. See Figure 12 and Appendix A.

FIGURE 12

Percentage of Black and White Students By Grade At or Above 34th Percentile Rank
(Cohort J: Grade 10 1980-81 Through Grade 12 1982-83)



Cohort K: Grade 11 1980-81 to Grade 12 1981-82

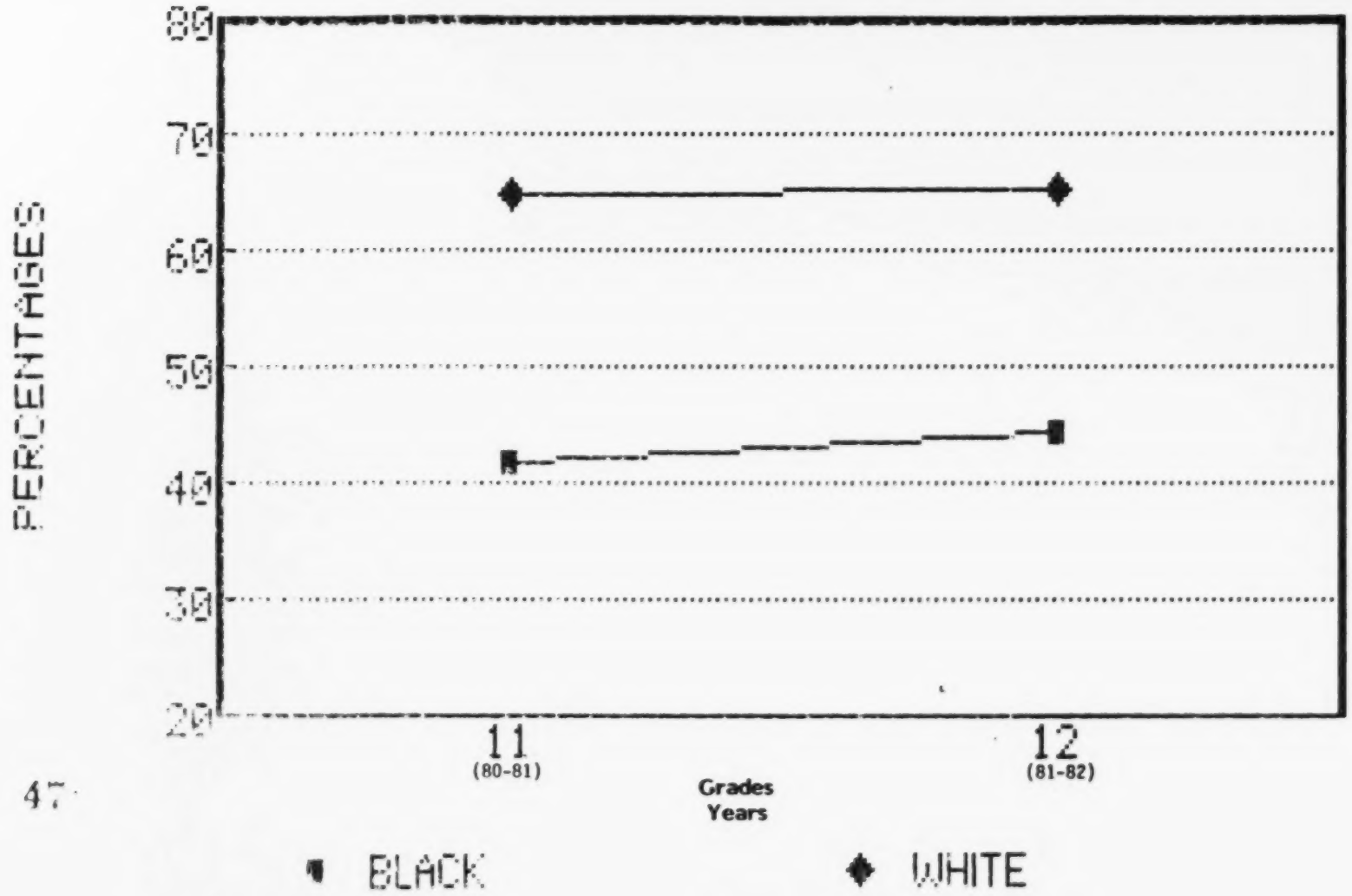
Parity was not attained at either of these grade levels for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR.

The gap between the percent of Black and White students who scored at or above the 34th PR narrowed from 23.0 percentage points in 1980-81 at grade 11 to 21.1 percentage points in 1981-82 at grade 12; a decrease of 1.9 percentage points. The proportion of Black students who scored at or above the minimum performance level from grade 11 in 1980-81 to grade 12 in 1981-82 increased by 2.4 percentage points. During this same period, the proportion of White students who scored at or above the minimum performance level increased by .5 percentage points.

As Black students progressed through the District's grade level structure by calendar year, the proportion of students who scored at or above the 34th PR increased from grades 11 to 12. The same pattern was true for White students. See Figure 13 and Appendix A.

FIGURE 13

Percentage of Black and White Students By Grade At or Above 34th Percentile Rank
(Cohort K: Grade 11 1980-81 and Grade 12 1981-82)



Cohort L: Grade 12 1980-81

Parity was not attained at grade 12 during 1980-81 for this cohort. A significantly greater proportion of White students than Black students scored at or above the 34th PR. The gap between the percent of Black and White students who met the minimum performance level was 24.9 percentage points. See Figure 14 and Appendix A.

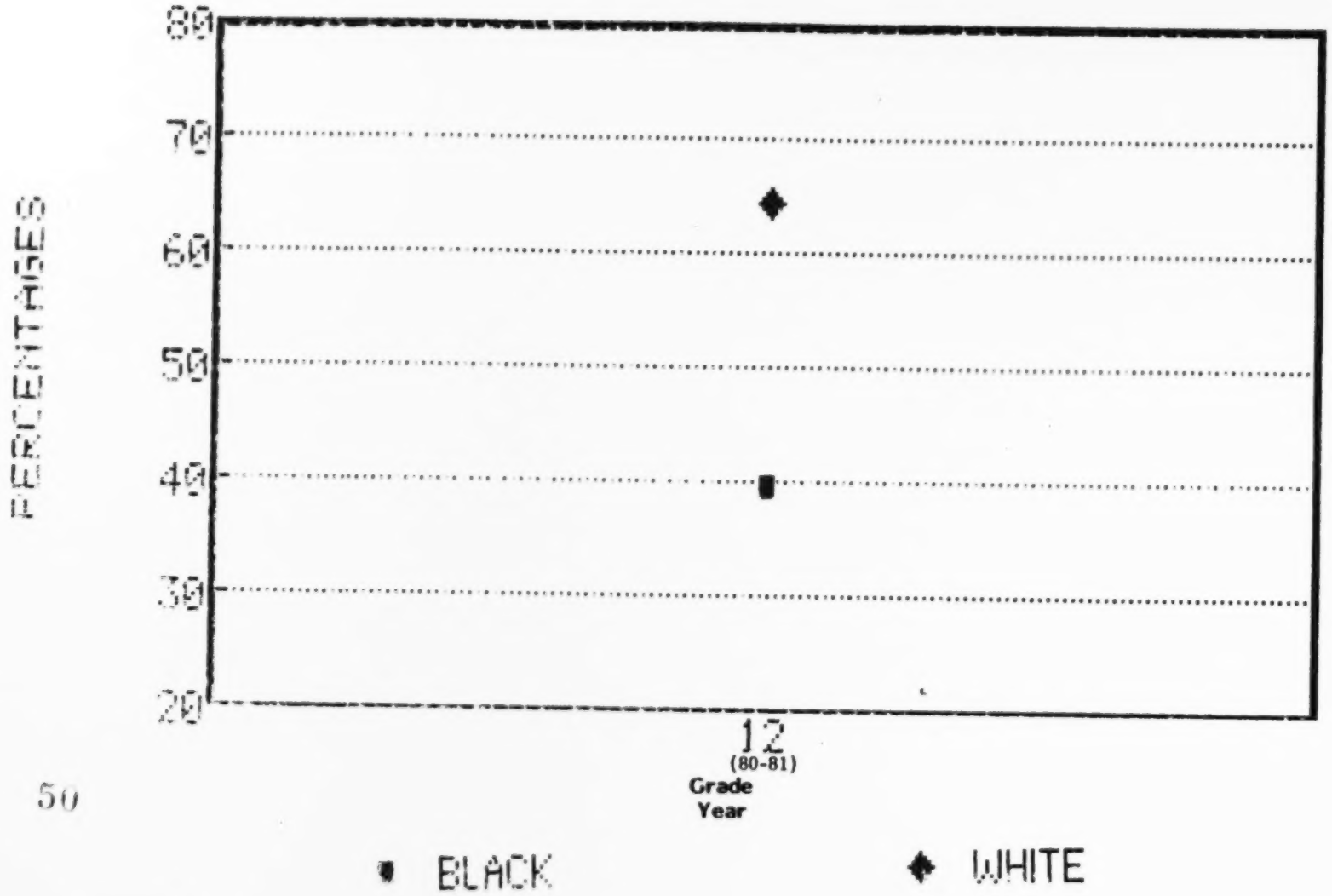
Discussion

As stated previously in this report, the Affirmative Reading Skills Program was instituted in 1982. "The major goal of the Affirmative Reading Skills Program (ARSP) is to establish parity in reading proficiency." (ARSP, January, 1982, p.1). Two of the District's final standards pertaining to the area of reading require that the ARSP "be directed in the program's primary effects at those students identified as having been adversely affected in the past, even though the program may be provided to all students and be measured, in terms of effectiveness, by its effects on those students identified initially, even though programs and services may be provided to all students..." (Final Standards for Implementation of the Remedial Orders, 4/24/81).

Each year, since the ARSP was implemented, the Department of Curriculum and Instruction has utilized the reading data from various reading-related reports produced by the District, as a basis for making modifications with respect to the implementation, curriculum, materials, et cetera of the ARSP, in an effort to enhance the reading proficiency of the students it serves. For the students in this longitudinal study, the data show that Black students read less well than White students at every grade level since the implementation of the program. It should be noted that for the cohorts included, grade 1 during the 1980-81 school year was the case where more Black than White students scored at or above the 34th PR.

FIGURE 14

Percentage of Black and White Students At or Above 34th Percentile Rank
(Cohort L: Grade 12 1980-81)



If one compares the gap between the reading scores of Black students and White students after the implementation of the ARSP (beginning with the 1982-83 school year and comparing the gap to the ending school year for cohorts A through J), it can be seen that the gap widened at every cohort except cohorts G, H and I. See Table 2.

When observing the data/results of the longitudinal gap analysis (refer to Figure 2), one can see that the ARSP has not enhanced the progress of the initially identified students toward parity. Since the implementation of the ARSP, parity was achieved 5 times. Prior to the implementation of the program, parity was achieved 9 times.

It appears that although the ARSP may be directed in its primary effects at those students initially identified as having been adversely affected and is measured in terms of its effectiveness, the program has had more positive effects on the unaffected student population.

TABLE 2

RACIAL PARITY GAPS IN READING COMPREHENSION
INITIAL YEAR OF AFFIRMATIVE READING SKILLS PLAN AND MOST RECENT YEAR

COHORT	INITIAL YEAR GAP (1981-82)	MOST RECENT GAP	MOST RECENT GAP	CHANGE IN GAP
A	0.9	7.0	1986-87	6.1
B	7.9	10.3	1986-87	2.4
C	7.6	8.3	1986-87	0.7
D	17.0	21.3	1986-87	4.3
E	11.4	17.1	1986-87	5.7
F	8.9	14.0	1986-87	5.1
G	18.9	16.4	1985-86	-2.5
H	16.8	16.1	1984-85	-0.7
I	22.8	22.7	1983-84	-0.1
J	18.9	20.3	1982-83	1.4

CHAPTER IV

SUMMARY AND CONCLUSIONS

The longitudinal parity study includes those students who progressed through the school district during the period of 1978 and 1987 and who had test results for reading comprehension on file. The study is designed to address the need in the District to analyze the status of reading parity on a longitudinal basis. Students were included in the sample if they had test results on file for the first and last available years of the study and if they progressed through the grade levels relecting an annual promotion pattern (as a member of cohort group).

These selection criteria rendered twelve cohorts ranging in size from 1400 to 2900 students whose reading scores were analyzed during each of the years they resided in the district. The results of a year-by-year Parity assessment completed for all of the cohorts are displayed in Figure 2 (page 11). Observations concerning the analysis follow.

The incidence of parity is greatest at the lower grades; cohorts A, B, C, F, and G evidence parity attainment sometime during the first seven grades. With one exception, secondary students (grades 8 through 12) have not evidenced parity attainment. The parity gap, likewise, is lowest among the elementary grades for all cohorts and greater at the secondary grades.

The longitudinal gap analysis shows that Black students read less well than White students at most grade levels, in each of the twelve cohorts. The difference between the percentage of Black students and White students who scored at or above the 34th PR widened when comparing the parity gap from the starting grade level point to the ending grade level point at Cohorts A through J.

The results of the longitudinal analysis reflect those reported in the annual multi-year cross sectional parity study insofar as evidence of parity is more frequently present in the primary grades. In total, six additional cohort-year groups attained parity not previously shown. This phenomenon is due to the selectivity of the sample used in the study at hand. The gaps computed for both studies also indicate a greater occurance of smaller gaps evident among cohort groups in the longitudinal study than their counterparts in the cross sectional study.

APPENDIX A. LONGITUDINAL PARITY IN READING COMPREHENSION

Grade/ Year	Total Black	Total White	Upper Black	Upper White	% Upr Black	% Upr White	Std Dev	Parity Gap	z	Parity Tolerance	Parity
Cohort A											
1/81	1309	574	1071	492	82.4%	92.1%	1.3%	-9.7%	-10.220	3.4%	Yes
2/82	1256	487	1067	404	82.1%	87.9%	2.0%	5.9%	6.459	5.1%	Yes
3/83	1217	491	1019	386	77.8%	78.6%	2.1%	0.8%	0.368	5.5%	Yes
4/84	1285	479	1240	366	73.6%	76.4%	2.3%	2.8%	1.244	5.8%	Yes
5/85	1219	495	1224	404	77.0%	81.6%	2.1%	4.6%	2.176	5.4%	Yes
6/86	1213	499	1469	451	85.9%	90.4%	1.7%	4.5%	2.608	4.4%	No
7/87	1908	534	1160	380	64.2%	71.2%	2.3%	7.0%	2.996	6.0%	No
Cohort B											
2/81	1885	458	1507	384	79.9%	83.8%	2.1%	3.9%	1.895	5.3%	Yes
3/82	1780	425	1351	356	75.9%	83.8%	2.3%	7.9%	3.484	5.8%	No
4/83	1788	432	1247	345	69.7%	79.9%	2.4%	10.1%	4.190	6.2%	No
5/84	1762	429	1317	356	74.7%	83.0%	2.3%	8.2%	3.602	5.9%	No
6/85	1774	423	1443	378	81.3%	89.4%	2.0%	8.0%	3.935	5.2%	No
7/86	1729	411	1314	352	75.6%	85.6%	2.3%	10.1%	4.402	5.9%	No
8/87	1985	458	1320	368	70.9%	80.3%	2.3%	10.3%	4.415	6.0%	No
Cohort C											
3/81	1961	368	1398	283	71.3%	76.9%	2.5%	5.6%	2.204	6.6%	Yes
4/82	1855	343	1200	248	64.7%	72.3%	2.8%	7.6%	2.732	7.2%	No
5/83	1851	329	1361	259	73.5%	78.7%	2.6%	5.2%	1.988	6.7%	Yes
6/84	1852	318	1467	280	79.2%	88.1%	2.4%	8.8%	3.676	6.2%	No
7/85	1781	304	1293	246	72.6%	80.9%	2.7%	8.3%	3.050	7.0%	No
8/86	1871	309	1345	252	71.5%	81.6%	2.7%	8.1%	3.025	6.9%	No
9/87	1961	368	1201	256	61.2%	69.6%	2.7%	8.3%	3.026	7.1%	No
Cohort D											
3/80	1770	317	1218	242	68.8%	76.3%	2.8%	7.5%	2.692	7.2%	No
4/81	1907	252	1179	264	61.8%	75.0%	2.8%	13.2%	4.728	7.2%	No
5/82	1816	336	1205	280	66.4%	83.3%	2.7%	17.0%	6.182	7.1%	No
6/83	1811	328	1366	278	75.4%	84.8%	2.5%	9.3%	3.686	6.5%	No
7/84	1728	297	1233	260	71.4%	87.5%	2.8%	16.2%	5.856	7.1%	No
8/85	1752	312	1203	256	68.7%	82.1%	2.8%	13.4%	4.786	7.2%	No
9/86	1728	312	1236	267	71.5%	85.6%	2.7%	14.0%	5.186	7.0%	No
10/87	1907	352	1062	271	55.7%	77.0%	2.9%	21.3%	7.465	7.3%	No
Cohort E											
3/79	1637	315	1102	239	67.3%	75.9%	2.9%	8.6%	2.998	7.3%	No
4/80	1558	287	950	206	61.0%	71.8%	3.1%	10.8%	3.476	8.0%	No
5/81	1550	275	1018	207	65.7%	75.3%	3.1%	9.6%	3.122	7.9%	No
6/82	1533	279	1094	231	71.4%	82.8%	2.9%	11.4%	3.962	7.4%	No
7/83	1496	273	1009	226	67.4%	82.8%	3.0%	15.3%	5.076	7.8%	No
8/84	1474	267	1038	233	70.4%	87.3%	3.0%	16.8%	5.705	7.6%	No
9/85	1478	274	1036	222	70.1%	81.0%	3.0%	10.9%	3.692	7.6%	No
10/86	1482	278	1006	232	67.9%	83.5%	3.0%	15.6%	5.216	7.7%	No
11/87	1637	315	952	237	58.2%	75.2%	3.0%	17.1%	5.690	7.7%	No

‡ Notes are on the last page of Appendix A

APPENDIX A. LONGITUDINAL PARITY IN READING COMPREHENSION

Grade/ Year	Total Black	Total White	Upper Black	Upper White	% Cor Black	% Cor White	Std Dev	Parity Gap	t	Parity Tolerance	Par ity
Cohort F											
4/79	1295	230	783	157	60.5%	68.3%	3.5%	7.8%	2.241	9.0%	Yes
5/80	1229	217	824	159	67.0%	73.3%	3.4%	6.2%	1.812	8.8%	Yes
6/81	1216	200	915	163	75.2%	81.5%	3.3%	6.3%	1.922	8.4%	Yes
7/82	1096	172	680	122	62.0%	70.9%	4.0%	8.9%	2.247	10.2%	Yes
8/83	1192	149	728	122	60.1%	81.9%	4.1%	15.8%	3.883	10.5%	No
9/84	1182	199	810	154	68.5%	77.4%	3.5%	8.9%	2.518	9.1%	Yes
10/85	1188	204	849	148	71.5%	82.4%	3.4%	10.9%	3.238	8.7%	No
11/86	1161	205	733	169	63.1%	78.0%	3.6%	14.9%	4.138	9.3%	No
12/87	1295	230	680	157	52.5%	68.5%	3.6%	14.0%	3.933	9.2%	No
Cohort G											
5/79	1165	232	780	183	67.5%	78.9%	3.3%	11.4%	3.443	8.5%	No
6/80	1099	213	776	165	70.6%	77.5%	3.4%	6.9%	2.033	8.7%	Yes
7/81	1013	191	590	147	58.2%	77.0%	3.8%	18.7%	4.870	9.9%	No
8/82	1003	195	561	146	55.9%	74.9%	3.8%	18.9%	4.921	9.9%	No
9/83	1019	161	687	128	67.4%	79.5%	3.9%	12.1%	3.083	10.1%	No
10/84	1023	206	662	169	64.7%	82.0%	3.6%	17.3%	4.849	9.2%	No
11/85	1082	217	635	165	58.7%	76.0%	3.6%	17.3%	4.795	9.3%	No
12/86	1165	232	678	173	58.2%	74.6%	3.5%	16.4%	4.667	9.0%	No
Cohort H											
6/79	1274	302	917	241	72.0%	79.8%	2.8%	7.8%	2.769	7.3%	No
7/80	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8/81	1090	247	607	190	55.7%	76.9%	3.5%	21.2%	6.141	8.9%	No
9/82	1013	222	596	168	58.8%	75.7%	3.6%	16.8%	4.679	9.3%	No
10/83	1120	268	791	222	70.6%	82.8%	3.0%	12.2%	4.044	7.8%	No
11/84	1116	267	656	208	58.8%	77.9%	3.3%	19.1%	5.797	8.5%	No
12/85	1274	302	719	219	56.4%	72.5%	3.1%	16.1%	5.119	8.1%	No
Cohort I											
9/81	1161	301	701	235	60.4%	78.1%	3.1%	17.7%	5.700	8.0%	No
10/82	997	267	605	223	60.7%	83.5%	3.3%	22.8%	6.972	8.4%	No
11/83	1039	263	588	211	56.6%	80.2%	3.4%	23.6%	7.032	8.7%	No
12/84	1161	301	631	232	54.3%	77.1%	3.2%	22.7%	7.145	8.2%	No
Cohort J											
10/81	1227	307	686	223	55.9%	72.6%	3.1%	16.7%	5.335	8.1%	No
11/82	1017	258	502	176	49.4%	68.2%	3.5%	18.9%	5.421	9.0%	No
12/83	1227	307	662	228	54.0%	74.3%	3.1%	20.3%	6.450	8.1%	No
Cohort K											
11/81	1101	357	462	232	42.0%	65.0%	3.0%	23.0%	7.569	7.8%	No
12/82	1101	357	489	234	44.4%	65.5%	3.0%	21.1%	6.940	7.8%	No
Cohort L											
12/81	2004	901	798	583	39.8%	64.7%	2.0%	24.9%	12.423	5.2%	No

‡ Notes are on the last page of Appendix A

APPENDIX A

LONGITUDINAL PARITY IN READING COMPREHENSION

NOTES

Cohort Definition

Each cohort of students includes those having standardized reading comprehension test socres for a baseline year and a final year, except Cohort L, in which students were in grade 12 in the baseline year. An additional requirement was that the grade level of the tests reflect promotion across the intervening years.

Upper Black

Black students scoring at or above the 34th percentile were tallied here.

Upper White

Tally of White students at or above the 34th percentile.

STD Dev

Standard Deviation. Computed as the Standard Error of the Difference Between Independent Proportions. See the Phase I report for the formula.

Parity Gap

Measured as the Percent of Upper White students minus the Percent of Upper Black students. Parity Gaps on the table may differ slightly from column differences due to rounding.

Z

Z Score. The Z test statistic is obtained by dividing the parity gap by Standard Deviation. A level of significance of .01 is used in this report, which gives a critical value of 2.58 for z.

Pairty Tolerance

Tolerance translates the critical value of z to reflect the critical value for Parity Gap. A Parity Gap larger than the Parity Tolerance indicates that parity is not achieved.